LAVRENT'YEV, M.L.; FOMIN, V.B.; POPOV, A.P.; SINITSKIY, V.D.; YEFREMENKO, O.K.; LUKASHIN, N.F.

Desulfurizing cast iron with lime in special equipment. Sbor. trud. UNIIM no.11:80-89 '65.

(MIRA 18:11)

SEREBRYAKOV, L.P.; VOLODCHENKO, K.G.; MINASHKIN, M.A.Prinimali uchastiye: TITOV, N.A.; PROSELKOV, N.L.; MINAYEV, I.Z.; NIKOLAYEV, S.V.; SAMOYLOVA, V.F.; SIDOROVA, L.P.; FOMIN, V.F., red. vypuska; BOBRYSHEV, A.T., red. vypuska; CHAPOVSKIY, Ye.G., red. vypuska; POSPELOVA, A.M., red. izd-va; GUROVA, O.A., tekhn. red.

[Collection of unified district estimates for geological prospecting] Sbornik edinykh poraionnykh edinichnykh rastsenok na geologorazvedochnye raboty. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po geol. i okhrane nedr. No.2. [Hydrogeology and geological engineering] Gidrogeologicheskie i inzhenerno-geologicheskie raboty. 1960. 91 p. (MIRA 14:12)

1. Russia (1923- U.S.S.R.) Ministerstvo geologii i okhrany nedr. 2. Ministerstvo geologii i okhrany nedr SSSR (for Titov, Nikolayev).

(Prospecting)

FOMIN, V.G.

General assembly of the Siberian Branch of the Academy of Sciences of the U.S.S.R. Izv.Sib.otd.AN SSSR no.4:116-117 '61. (MIRA 14:6)
(Siberia—Research)

FOMIN, V.G.

Consolidated Learned Council on Economics. Izv.Sib.otd. AN SSR no.4:117-119 '61. (MIRA 14:6)
(Siberia--Economic conditions)

FOMIN, V.G.

Development of economic research at the Siberian Branch of the Academy of Sciences of the U.S.S.R. Izv. Sib. otd. AN SSSR no.10:10-19 '61. (MIRA 14:12)
(Siberia--Economic research)

AZROVA, TS.S.; ARKHIPOV, A.P.; VINOGRADOV, A.V.; GRABOVSKIY, I.V.; GRISHINA, R.I.; DMITRIYEV, P.D.; DUBINSKIY, Ye.L.; ZABRODIN, B.V.; KOLOTIY, M.V.; KRASNOV, B.S.; KURDYUKOVA, N.V.; L'VOVA, Yu.M.; OBUKHOVA, A.V.; FOMIN, V.G.; MEDVEDEVA, M.A., tekhn. red.

[Album of drawings of TE3, TE7, TE2, TE1, TEM1, and TU2 diesel locomotives; electric apparatus] Al'bom chertezhei teplovozov TE3, TE7, TE2, TE1, TEM1 i TU2; elektricheskie apparaty. Moskva, Transzheldorizdat. Vol.2. 1963. 394 p (MIRA 16:9)

1. Russia (1923- U.S.S.R.) Glavnoye upravleniye lokomotivnogo khozyaystva.

(Diesel locomotives--Electric equipment)

S/032/60/026/008/003/011
B015/B064

AUTHORS: Fomin, V. G., Bogorodskiy, O. V.

TITLE: Determination of the Degree of Microsegregation in Germanium - Silicon Alloys

PERIODICAL: Zavodskaya laboratoriya, 1960, Vol. 26, No. 8, pp. 977-979

TEXT: The degree of dendrite segregation was determined in papers of Ye. L. Mints (Ref. 1) and other authors (Refs. 2-4) from the line broadening in the X-ray picture. In this connection it was, however, omitted to consider the other factors that may also bring about a broadening of the X-ray spectrum line. In the present case, the degree of microsegregation was computed from the broadening of the diffraction lines corresponding to the glancing angles. The examinations were made on Ge-Si semiconductor alloys with a PKY (RKU) X-ray camera. A sample pulverized to 0.1μ - 1μ was used, the X-ray lines corresponding to the larger glancing angles were photometrically evaluated, and their width and broadening determined. The proportionality between the broadening of the X-ray line and the tangent of the glancing angle showed that the line broadening was only due to

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microsegregation (Fig. 2). Since the line broadening depends linearly on the composition of the Ge-Si alloy, it was possible to determine from the line broadening a deviation of the chemical composition of the sample from the average value. The minimum silicon content varied from 0 to 8 at% in the individual parts of the sample. There are 2 figures and 4 references: 3 Soviet and 1 US.

ASSOCIATION: Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut redkometallicheskoy promyshlennosti (State Scientific Research and Planning Institute of the Rare Metals Industry)

24,7700 (1136, 1138, 1158)

S/070/61/006/003/006/009
E021/E435

AUTHORS: Fomin, V.G. and Bogorodskiy, O.V.

TITLE: Study of microliquation during solidification of germanium-silicon alloys

PERIODICAL: Kristallografiya, 1961, Vol.6, No.3, pp.455-459

TEXT: Microliquation affects the semiconducting properties of materials and is therefore a serious disadvantage. Germanium-silicon alloys have a tendency to microliquation. The influence of composition and rate of solidification of these alloys on microliquation was therefore studied. Alloys were prepared by zone-melting and different rates of traverse of the zone were tried. The degree of microliquation was estimated by the broadening of the diffraction lines on the X-ray photograph. X-ray analysis was carried out by the method of Debye with powder samples. The lattice parameter (with an accuracy of 0.001Å) and the degree of microliquation were then calculated. The integral intensity for a cylindrical film height 1 mm, radius R mm is expressed by the well known formula (the symbols having their usual meaning):

$$p = \frac{P'}{I_0} = \frac{QPl}{16\pi\mu R\sin\vartheta} = \frac{N^2e^4\lambda^3W}{32\pi m^2c^4R}\cdot\frac{1+\cos 2\vartheta}{\sin\vartheta\cos\vartheta}pF^2A \quad (1)$$

A table and Fig.1 show the results. The physical broadening of the (711) lines is shown plotted against the lattice parameter (1 - polycrystal with a rate of zone traverse u_1; 2 - polycrystal with a rate of u_2; 3 - single crystal with a rate of u_2. $u_1:u_2 = 2:1$). Curves of the true distribution of the intensity in lines (511) and (333) obtained with iron radiation were constructed with the help of Fourier analysis. Fig.2 shows the distribution for two samples for the (511) line (2a) and also curves of the distribution of microliquation in relation to the crystal parameter (2b). Inhomogeneity increases with increase in the rate of zone traverse. The degree of homogeneity of single crystal alloys was about twice that of polycrystalline samples. There are 2 figures, 1 table and 7 references: 4 Soviet-bloc and 3 non-Soviet-bloc. The two references to English language publications read as follows:

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22795

S/070/61/006/003/006/009
E021/E435

Study of microliquation ...

Science News Letter, 20 March, 185, 1954;
R.Logan, A.Goss, M.Schwartz. J.Appl.Phys., 25, 12, 1551-1552, 1954.

ASSOCIATION: Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut redkometallicheskoy promyshlennosti (State Scientific Research and Planning Institute of the Rare Metals Industry)

SUBMITTED: June 9, 1960 (initially)
January 28, 1961 (after revision)

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FOMIN, V.G.; OVODOVA, A.V.; BOGORODSKIY, O.V.; SHIL'SHTEYN, S.Sh.

Some features of the crystallization of germanium-silicon alloys in zone melting. Kristallografiia 6 no.2:256-260 Mr-Ap '61. (MIRA 14:9)

1. Gosudarstvennyy nauchno-issledovatel'skiy i proektnyy institut redkometallicheskoy promyshlennosti.
(Germanium-silicon alloys) (Dislocations in crystals) (Melting)

S/032/62/028/012/021/023
B104/B186

AUTHORS: Fomin, V. G., and Gurevich, M. A.

TITLE: Accessory to the PKO (RKSO) standard X-ray camera for the detection of structural defects in germanium

PERIODICAL: Zavodskaya laboratoriya, v. 28, no. 12, 1962, 1526

TEXT: The device described here makes use of the anomalous X-ray absorption to detect structural defects, above all dislocations, in germanium. The device (Fig.), made of brass, is fastened to the sample holder of the goniometer head of the X-ray camera so that the crystal can be adjusted in proper relation to the X-ray beam. The crystal (1) is a single-crystal plate (0.7-2 mm thick) with a diameter of 3-20 mm. It is fastened to the base plane of the body (2) by the screw (3) so that the axis of the sample holder (4) of the goniometer lies in the plane of the base of (2). The body (5) can be detached with respect to the base plane of (2). The X-ray film is in a badge (6) of black paper. A germanium single crystal plate (of 15 mm diameter, 3 mm thick), oriented with an accuracy of 1-2° in the (III) plane, was ground with abrasive powders of various grades. In this way,

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the deviation from the (III) plane was reduced to 10'. The sample was then polished for 20 sec at 48°C with СП-4 (SP-4) etchant. Before this chemical polishing the plate was 0.9 mm thick. There is 1 figure.

ASSOCIATION: Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut redkometallicheskoy promyshlennosti (State Design and Planning Scientific Research Institute of the Rare Metals Industry)

Fig. Schematic diagram of the accessory.

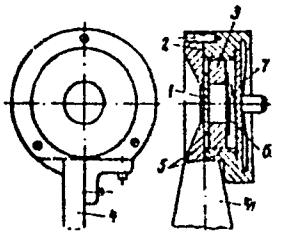

Схема приспособления

TSYGAN, V.T.; FOMIN, V.G.; GUREVICH, M.A.

Attachment to the GUR-3 X-ray goniometer for operation in the regime of a biprism spectrometer. Zav.lab. 29 no.11:1383-1384 '63. (MIRA 16:12)

1. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut redkometallicheskoy promyshlennosti.

FOMIN, V.G.; GUREVICH, M.A.; SONKINA, E.M.

Modernized RKSO camera for diffraction microradiography.
Prib. i tekh. eksp. 9 no.2:160-162 Mr-Ap'64. (MIRA 17:5)

1. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut redkometallicheskoy promyshlennosti.

FOMIN, V.G.; SARANTSEV, V.F.; SHCHEGOL'KOVA, L.A.; GUREVICH, M.A.

Scanning camera for studying dislocations. Prib. i tekh. eksp. 9 no.2:176-177 Mr-Ap'64. (MIRA 17:5)

1. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut redkometallicheskoy promyshlennosti.

ACCESSION NR: AP4024989 S/0070/64/009/002/0219/0226

AUTHORS: Fomin, V. O.; Mil'vidskiy, M. G.; Grishina, S. P.; Belyatskaya, N. S.; Gurevich, M. A.

TITLE: Some structural features of highly doped single crystals of silicon

SOURCE: Kristallografiya, v. 9, no. 2, 1964, 219-226

TOPIC TAGS: silicon, single crystal growth, crystal structure, metallographic study, x ray study, crystal pulling, impurity content

ABSTRACT: Metallographic and x-ray studies have shown several distributional patterns of impurities in the body of a silicon rod, including cellular substructure. An increase in impurity concentration substantially affects the structure of the crystal and, to a considerable degree, determines growth characteristics. All else being the same, increased impurity concentration in a melt and in the solid rod apparently increases periodic fluctuations in growth rate during pulling and produces associated periodic irregularities in impurity distribution. These irregularities appear in longitudinal sections and in spiral growth rings in transverse sections. Such highly doped crystals show a greater tendency to grow

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ACCESSION NR: AP4024989

along definite crystal faces. At a certain impurity concentration, crystals begin to show a distinct knobby surface, then a cellular substructure. The general pattern of development of the cellular substructure is the same as in highly doped crystals of Ge. No dislocations were detected in the investigated single crystals. This and the presence of cellular structure are anomalous features when coexisting in the same crystals. Actually, the edge of a cell may be considered a dislocation, and the disorientation angle may give an approximate evaluation of impurity desegregation along this zone. Block structure is responsible for this cellular development. Orig. art. has: 4 figures and 1 table.

ASSOCIATION: Gosudarstvenny*y nauchno-issledovatel'skiy i proyektny*y institut redkometallicheskoy prom*shlennosti (State Scientific Research and Planning Institute of the Rare-Metal Industry)

SUBMITTED: 10May63 DATE ACQ: 16Apr64 ENCL: 00

SUB CODE: SS NO REF SOV: 004 OTHER: 010

Card 2/2

FOMIN, V.G.; MALYUTINA, G.L.; GUREVICH, M.A.; NOVIKOV, A.G.

Distribution of the alloying admixture of gold in germanium single crystals. Kristallografiia 9 no.2:227-230 Mr-Ap'64. (MIRA 17:5)

1. Gosudarstvennyy nauchno-issledovatel'skiy proyektnyy institut redkometallicheskoy promyshlennosti.

L 6725-65 EWT(m)/EWP(q)/EWP(b) IJP(c)/AFWL/AS(mp)-2/RAEM(t) JD 48 48

ACCESSION NR: AP4046468 S/0032/64/030/010/1227/1229

AUTHORS: Fomin, V. G.; Shchegol'kova, L. A.; Belyatskaya, N. S.; Tuzegan, V. T.

TITLE: X-ray micrographic phenomena of dislocations in silicon 18 27

SOURCE: Zavodskaya laboratoriya, v. 30, no. 10, 1964, 1227-1229

TOPIC TAGS: x-ray crystallography, dislocation net, silicon/ URS-50 IM instrument, BSV 6Cu tube, GUR 4 instrument

ABSTRACT: The setup used by the authors (Fig. 1 on the Enclosure) is designed to obtain topographic images of defects in silicon crystals. A beam of x-rays from the tube f has an angle of divergence α that is much greater in the plane of the figure than in the plane normal to it. The extreme rays are shown. The crystal K, with reflecting planes ($1\bar{1}0$) at right angles to the planes of the polished specimen (111), is positioned for proper reflection by measuring transmitted rays with the Geiger counter G. A nickel filter cuts out beta radiation. To reduce exposure time, high voltage is applied to the tube, but this generates some radiation of undesirable wavelength. The diaphragm is collimated to pass only the desirable part of the spectrum. The x-ray source for this work was an

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ACCESSION NR: AP4046468

URS-50 IM instrument with a BSV-6Cu tube. The basic instrument was a GUR-4 with a special device for x-ray diffraction micrography. The operational constants were: voltage 25-26 kv, current 10 ma, exposure time 7-8 hrs; tube-specimen focal length 250 mm, specimen-film distance 10 mm. Photographs obtained by this method clearly show the pattern and orientation of dislocations in the crystal. Orig. art. has: 3 figures.

ASSOCIATION: Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut redkometallicheskoy promyshlennosti (State Scientific Research and Planning Institute of the Rare Metal Industry)

SUBMITTED: 00 ENCL: 01

SUB CODE: SS NO REF SOV: 003 OTHER: 002

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L 6725-65
ACCESSION NR: AP4046468

ENCLOSURE: 01

0

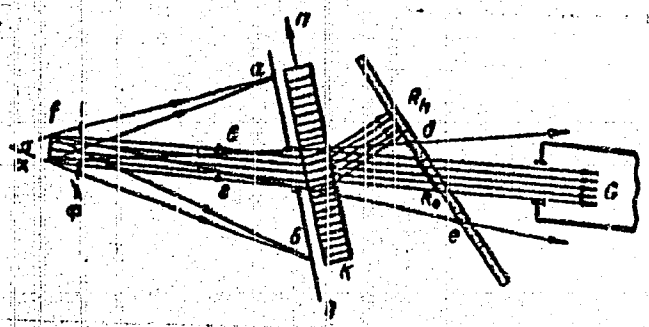

Fig. 1. Setup for x-ray diffraction micrography.

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ACC NR: AP6024503 SOURCE CODE: UR/0181/66/008/007/2253/2255

AUTHOR: Fomin, V. G.; Mil'vidskiy, M. G.; Solov'yeva, Ye. V.

ORG: State Scientific Research and Design Institute of the Rare-Metal Industry, Moscow (Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut redkometallicheskoy promyshlennosti)

TITLE: Influence of structure defects on certain electric properties of germanium doped with gold and antimony

SOURCE: Fizika tverdogo tela, v. 8, no. 7, 1966, 2253-2255

TOPIC TAGS: germanium semiconductor, semiconductor impurity, impurity level, hole mobility, crystal dislocation, crystal defect, Hall effect, electric conductivity

ABSTRACT: The purpose of the investigation was to explain the anomalous decrease in the mobility of the majority carriers at low temperatures, observed in strongly doped single-crystal p-type germanium. To this end, tests were made on single crystals grown by the Czochralski method in the [111] direction and cut into plates perpendicular to the growth axis. The dislocation density in the investigated samples ranged from 1×10^3 to 5×10^4 cm^{-2}. Microscopic x-ray diffraction studies have disclosed the presence of an appreciable number of point defects in addition to dislocations. The degree of inhomogeneity of the crystals was determined by microphotometry of the x-ray diffraction patterns. Measurement of the electric conductivity and of the Hall effect at room temperature showed no oscillations in the properties of the

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ACC NR: AP6024503

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samples, thus indicating relatively uniform distribution of the gold atoms in the solid solution. Measurements at 77K have shown, however, that some plates were strongly inhomogeneous. The observed disturbances of the crystal lattice are attributed either to finely dispersed segregation of eutectic gold-germanium segregations, or to the presence of pre-precipitation regions. The maximum inhomogeneity of the distribution of the electric properties took place in the samples with maximum structural inhomogeneity, as manifest by variations of the density of the x-ray diffraction patterns. It is in these samples that the minimal values of the carrier mobility were observed. The most probable cause of the decrease in the mobility at low temperatures is thus attributed to the inhomogeneous distribution of the gold or antimony and of other uncontrolled impurities with shallow levels. The latter can be due either to primary processes during crystallization or to precipitation occurring during the cooling of the crystal. The authors thank A. M. Yelistratov, R. A. Zvinchuk, M. I. Iglitsyn, V. I. Fistul', and V. P. Aver'yanova for interest and for a discussion of the experimental results. Orig. art. has: 2 figures and 1 formula.

SUB CODE: 20/ SUBM DATE: 15Nov65/ ORIG REF: 004/ OTH REF: 004

Card 2/2 egh

VELIKOVSKAYA, Ye.M.; KOZHEVNIKOV, A.V.; FOMIN, V.I.

More about the "moraine" near TSebel'da. Vest. Mosk. un. Ser. 4: Geol. 15 no.4:14-20 Jl-Ag '60. (MIRA 13:10)

1. Kafedra istoricheskoy geologii Moskovskogo universiteta.
(Tsebel'da region--Moraines)

FOMIN, V.I., inzh.; ZHURAVLEV, B.I., inzh; BAZHENOV, Ye.I.

Using high-speed motion-picture photography for investigating the performance of agricultural machinery. Trakt. i sel'khozmash. 31 no.6:35-36 Je '61. (MIRA 14:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut sel'skokhozyaystvennogo mashinostroyeniya.
(Agricultural machinery) (Motion-picture photography)

FOMIN, V.I.; ZHURAVLEV, B.I.

Unit for high speed still photography. Zhur.nauch.i prikl.fot. i kin. 7 no.3:219-221 My-Je '62. (MIRA 15:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut sel'skokhozyaystvennogo mashinostroyeniya.
(Photography, High speed)
(Photography--Scientific application)

DOLGOV, I.A.; FOMIN, V.I.; OSOBOV, V.I.; BELOZOR, V.V.

Mechanization of hay making operations abroad. Trakt. i sel'khozmash. 32 no.1:46-48 p.3 of cover Ja '62. (MIRA 15:2)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut sel'skokhozyaystvennogo mashinostroyeniya.
(United States--Hay)

FOMIN, V.I., inzh.

Some remarks apropos of B.N. Shtompel's monograph "Study of the grass cutting performanceof rotating mowers." Trakt. i sel'khozmash. 32 no.7: 47-48 Jl '62. (MIRA 15:7)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut sel'skokhozyaystvennogo mashinostroyeniya.
(Mowing machines) (Shtompel, B.N.)

FOMIN, V.I., inzh.

A conference held in Rostov on problems concerning the increase of the operating speeds of agricultural machinery. Trakt.i sel'khozmash. no.8:48-p. 3 of cover Ag '62. (MIRA 15:8)
(Agricultural machinery--Congresses)

PANKRATOV, N.S., kand. tekhn. nauk; POKAMESTOV, V.V.; LUK'YANOV, A.D.; GAVRILOV, Yu.M.; IVANOV, Yu.I.; KONDRASHOV, A.S.; MAYEVSKAYA, K.T.; MALKOV, L.M.; FOMIN, V.K.; KOLOTUSHKIN, V.I., red.; LAPIONOV, G.Ye., tekhn. red.

[New equipment and technology of peat-bog preparation and the winning of granulated peat] Novaia tekhnika i tekhnologiia bolotno-podgotovitel'nykh rabot i dobychi granulirovannogo torfa. Moskva, Gos. energ. izd-vo, 1961. 86 p. (MIRA 15:2)

1. Leningrad. Vsesoyuznyy nauchno-issledovatel'skiy institut torfyanoy promyshlennosti. Direktor filiala Vsesoyuznogo nauchno-issledovatel'skogo instituta torfyanoy promyshlennosti (for Pankratov).

(Peat bogs) (Peat machinery)

TURIK, I.A.; GLEZER, I.G.; IONINA, M.A.; NOVIKOVA, V.I.; SUROVTSEV, S.A.; FOMIN, V.K.

Ways for improving the quality of foundry coke. Koks i khim. no.9:25-27 '62. (MIRA 16:10)

1. Ukrainskiy uglekhimicheskiy institut (for Turik).
2. Yenakiyevskiy koksokhimicheskiy zavod (for all except Turik).
(Coke)

KURATOV, P.S., kand.tekhn.nauk; FOMIN, V.L.

Continuous creep of unevenly heated discs. Energomashinostroenie 9 no.8:20-21 Ag '63. (MIRA 16:8)
(Heat--Transmission)

FOMIN, V.L.

Plane deformation of hardening hollow cylinders under the action of internal pressure and a stationary thermal field. Issl. po uprug. i plast. no.3:161-171 '64. (MIRA 17:6)

S/179/60/000/03/009/039
E081/E441

AUTHOR: Fomin, V.L. (Leningrad)

TITLE: Elasto-Plastic Equilibrium of an Unevenly Heated Tube Under the Action of Internal Pressure

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Mekhanika i mashinostroyeniye, 1960, Nr 3, pp 55-59 (USSR)

ABSTRACT: A tube subjected to internal pressure p and unevenly heated is a common feature of power, chemical and other installations. For the axially symmetrical problem, the temperature field $T_0(r)$ is taken as the second equations, p 55, in which T_2 is the temperature at the external boundary of the tube ($r = b$); the internal boundary ($r = a$) is maintained at zero temperature. The solution of the problem in the plastic zone is found with the aid of the complex potentials suggested by Galin (Ref 1; 3rd Equations, p 55), where k is the flow limit in pure shear, and in the elastic zone by the Kolosov-Muskhelishvili potentials (4th Equations, p 55), where B_0 is a real constant, E is Young's modulus, α is the coefficient of linear

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S/179/60/000/03/009/039
E081/E441

Elasto-Plastic Equilibrium of an Unevenly Heated Tube Under the Action of Internal Pressure

expansion, and the Poisson's ratio is taken as 0.5. A first order perturbation from the axially symmetrical state is considered (2nd Equation, p 56, with the stresses given by the 3rd equations; δ is a small parameter). The boundary between the plastic and elastic zones is found from the 4th and 5th sets of equations, p 57. For a second order perturbation from the axially symmetrical state, the temperature field is represented by the 6th equation, p 57, and the stresses by the 7th equations. The boundary between the plastic and elastic zones is then found from the third equation (for r), p 58. A numerical example, using the first approximation, is considered, based on the data near the foot of p 59. Calculations of σ_θ for $\theta = 0$ are plotted in the figure. For $\delta = 0.2$, σ_θ differs from σ_θ^0 (see 3rd equations, p 56) by a maximum of 20%; the boundary between the elastic and plastic zones $r = 4.23 - 0.05 \cos\theta$ differs insignificantly from a

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S/179/60/000/03/009/039
E081/E441

Elasto-Plastic Equilibrium of an Unevenly Heated Tube Under the Action of Internal Pressure

circle. There are 1 figure and 2 Soviet references.

SUBMITTED: February 4, 1960

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Fomin, V.L.

PHASE I BOOK EXPLOITATION SOV/4630

Leningrad. Universitet

Mekhanika (Mechanics) [Leningrad] 1960. 254 p. (Series: Its: Uchenyye zapiski, no. 280. Seriya matematicheskikh nauk, vyp. 35) Errata slip inserted. 1,725 copies printed.

Sponsoring Agency: Leningradskiy ordena Lenina gosudarstvennyy universitet imeni A. A. Zhdanova.

Resp. Ed.: N. N. Polyakhov, Professor; Ed.: T. I. Kulagina; Tech. Ed.: Ye. G. Zhukova.

PURPOSE: This collection of articles is intended for scientists, engineers at NII's (scientific research institutes) and design offices and also for students of advanced courses in related fields.

COVERAGE: The collection consists of original investigations in the field of modern mechanics including general mechanics, theory of elasticity, and hydroaerodynamics. No personalities are mentioned. References accompany all articles except one.

24 4200 1327 1103 1191

31077
S/179/61/000/005/016/022
E032/E414

AUTHOR: Fomin, V.L. (Leningrad)

TITLE: Elastoplastic equilibrium of a hollow cylinder under the action of an axially symmetric temperature field

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye tekhnicheskikh nauk. Mekhanika i mashinostroyeniye. no.5, 1961, 127-128

TEXT: The author discusses the elastoplastic equilibrium of a thin-walled tube under the action of external pressure and a temperature field of the form

$$T(r,z) = T^{\circ}(r) + \delta T'(r,z)$$

where δ is a small parameter, (r, θ, z) are cylindrical coordinates and T' is a linear function of z. Using the method (and the notation) employed in the previous paper (Ref.1: Izv. AN SSSR. OTN. Mekhanika i mashinostroyeniye, 1960, no.3), the author derives formulae for the stresses and displacements at various points in the tube. It is shown that in the elastic zone

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Elastoplastic equilibrium ...

$$\sigma_r'^e = \frac{2\alpha E}{r^2}\left[\Phi(r,b) - \frac{r^2-b^2}{a^2-b^2}\Phi(c,b)\right]$$
$$\sigma_\theta'^e = \frac{2\alpha E}{r^2}\left[\frac{b^2+r^2}{b^2-c^2}\Phi(c,b) - r^2T'(r,z) - \Phi(r,b)\right]$$
$$\sigma_z'^e = 2\alpha E\left[\frac{1}{b^2-a^2}\Phi(a,b) + \frac{1}{b^2-c^2}\Phi(c,b) - T'(r,z)\right]$$
$$\tau_{rz}'^e = \frac{\alpha E}{r}\frac{\partial}{\partial z}\left[\frac{b^2-r^2}{b^2-c^2}\Phi(c,b) - 2\Phi(r,b) + \frac{b^2-r^2}{b^2-a^2}\Phi(a,b)\right]$$

while in the plastic zone (8)

$$\sigma_r'^p = \sigma_\theta'^p = 0, \qquad \sigma_z'^p = \alpha E\left[\frac{2}{b^2-a^2}\Phi(a,b) - T'(r,z)\right]$$
$$\tau_{rz}'^p = \frac{\alpha E}{r}\frac{\partial}{\partial z}\left[\Phi(a,r) + \frac{a^2-r^2}{b^2-a^2}\Phi(a,b)\right] \qquad (10)$$

The boundary between the zones is the right-circular cone
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Elastoplastic equilibrium ..

$$r = c + \delta \frac{\alpha E}{M}\left[\frac{2}{b^2 - c^2}\Phi(c, b) - T'(c, z)\right] \qquad \left(2M = \left[\frac{d\sigma_\theta^{op}}{dr} - \frac{d\sigma_\theta^{os}}{dr}\right]_{r=c}\right)$$

The elastoplastic problem in the case of an arbitrary field T', r, z may be obtained by the method of separation of variables and the elastic zone may be interpreted in terms of the general solution given by G.N.Maslov (Ref.4: Thermoelastic Equilibrium in the Theory of Elasticity, Izv. VNIIGI im. Vedeneyeva, 1938, v.23). There are 4 Soviet-bloc references.

SUBMITTED: April 14, 1961

Card 3/3

S/179/62/000/001/020/027
E114/E181

24.4200

AUTHOR: Fomin, V.L. (Leningrad)

TITLE: Relaxation of elastic-plastic tubes subjected to a thermal field and a uniform external pressure

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye tekhnicheskikh nauk. Mekhanika i mashinostroyeniye, no.1, 1962, 149-152

TEXT: The article considers the behaviour of a round tube made of elastic-plastic material and subjected to a cyclically varying external uniform pressure and an asymmetric temperature field. The loading is due to quasi-stationary thermal fields satisfying the Laplace equations cyclically applied and removed. An equation was established for elastic stresses in a tube due to internal heating and the residual strains were assumed to exist and behave in accordance with the theory of relaxation, i.e. the sum of residual strains and elastic strains nowhere reaches the magnitude sufficient to cause flow. First of all, a radical distribution of temperature is considered in

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conjunction with external pressure. Then expressions are derived for a distribution of temperature in the absence of pressure. Finally, the general case is considered and an equation is derived defining the zone in which permanent deformation will take place.
There are 4 figures.

SUBMITTED: November 11, 1961

/B

Card 2/2

FOMIN, V.L.

Errors in the solution of the elastic problem caused by the substitution of Poisson's ratios. Issl.po uprug.i plast no.1:181-182 '61. (MIRA 15:2)
(Elasticity)

FOMIN, V.L.

Simulating thermal stresses in the plane elastic problem. Issl.po uprug.i plast. no.1:183-185 '61. (MIRA 15:2)
(Thermal stresses)
(Elasticity)

24.4200

S/044/62/000/009/029/069
A060/A000

AUTHOR: Fomin, V.L.

TITLE: On the error of solution of the elastic problem when one Poisson coefficient is replaced by another

PERIODICAL: Referativnyy zhurnal, Matematika, no. 9, 1962, 60, abstract 9B286. (In collection "Issled. po uprugosti i plastichnosti". I. Leningrad, Leningr. un-t, 1961, 181 - 182)

TEXT: An estimate is given for the energetic norm of the error of solution of basic problems of the three-dimenstional theory of elasticity, when one Poisson coefficient is replaced by another; the plane case is also considered. It is established that the error may be arbitrarily great even for a small change in the Poisson coefficient.

S.G. Mikhlin

[Abstracter's note: Complete translation]

Card 1/1

S/753/61/000/001/006/007

AUTHOR: Fomin, V. L.

TITLE: On the modeling of temperature stresses in the plane elastic problem.

SOURCE: Leningrad. Universitet. Matematiko-mekhanicheskiy fakul'tet. Issledovaniya po uprugosti i plastichnosti. no.1. 1961, 183-185.

TEXT: The paper outlines a theoretical method intended to overcome the difficulty in optical experimental methods of stress determination in modeling the boundary conditions for the temperature field and to remove the difficulty of reconciling the different stress distributions in models and in the full-scale body if the elastic constants are different. Regarding the first problem as resolved by the use of N. I. Muskhelishvili theorem, according to which temperature stresses in the plane problem (in a stationary field) can be regarded as dislocation-caused stresses, the author tackles the second problem. The paper specifies the temperature field that must be established in a model to simulate the stress distribution in the full-scale body if the shapes are equal, but the model and the full-scale body have different Poisson coefficients. It is also demonstrated (if the Levi-Mitchell condition is not fulfilled) that, if in the full-scale body there is no temperature field, then a specified dislocation can produce in the model a field of stresses that coincide with

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the stresses in the full-scale body. If the Levi-Mitchell condition is fulfilled, then we obtain automatically identical stress fields in the model and in the full-scale body, so that there is no need for any supplementary dislocations. The solution of the elastic problem in a doubly-connected region is set forth in terms of complex potentials, thereby determining the characteristics of the dislocations that must be created in the model. There are no figures or tables; there are 2 references (1 Russian-language Soviet: Muskhelishvili, N. I., Nekotoryye osnovnyye zadachi matematicheskoy teorii uprugosti, (Problems of the mathematical theory of elasticity), Izd-vo AN SSSR, 1949; 1 Russian-language translation of the English-language textbook: Coker, E. G., and L. N. G. Filon, Opticheskiy metod issledovaniya napryazheniy (A Treatise on photoelasticity), ONTI, 1936 (English-language original published by Cambridge University Press, London, 1931).

ASSOCIATION: Kafedra teorii uprugosti matematiko-mekhanicheskogo fakul'teta Leningradskogo gosudarstvennogo universiteta im. A. A. Zhdanova (Department of the Theory of Elasticity, School of Mathematics and Mechanics, Leningrad State University imeni A. A. Zhdanov).

FOMIN, V.L. (Leningrad)

Limiting equilibrium of a round cylindrical shell. Stroi.mekh. i rasch.soor. 5 no.2:4-6 '63. (MIRA 16:6)
(Elastic plates and shells)

FOMIN, V.L.

Plane deformation of hardening hollow cylinders under the action of an internal pressure and a stationary thermal field. Issl. po uprug. i plast. no.3:161-171 '64. (MIRA 18:4)

ACC NR: AP7002701 SOURCE CODE: UR/0424/66/000/006/0144/0147

AUTHOR: Kulikov, V. D. (Leningrad); Fomin, V. L. (Leningrad)

ORG: none

TITLE: On the stress concentration in a plate with a circular opening

SOURCE: Inzhenernyy zhurnal. Mekhanika tverdogo tela, no. 6, 1966, 144-147

TOPIC TAGS: stress concentration, stress analysis, complex stress, tensile stress, variational method, variational calculus, functional equation

ABSTRACT: The stress concentration in an infinite plate with a circular opening was examined under bilateral strain. The solution of a simple loading problem was reduced to a minimization of the nonquadratic functional. The infinite plane with an opening was substituted by a circular ring with an adequate external radius; Kachanov's variational method was used to calculate this finite area. The statistically permissible stress-strain fields were determined by separating the variables in the equilibrium equations. The calculations were performed on a M-20 computer. The results obtained by other researchers in the past, including a case of pure shear as well as previously obtained empirical results, are tabulated. Orig. art. has: 15 formulas, 4 figures.

SUB CODE: 20, 12 SUBM DATE: 22Jun66/ ORIG REF: 006

Card 1/1

SHUKSTAL', Ya.V., kand. ekonom. nauk; VERKHOVSKIY, I.A., kand. ekonom. nauk; FOMIN, V.M., kand. ekonom. nauk; MEZENEV, N.I., inzh.; DMITRIYEV, V.I., kand. ekonom. nauk; PADNYA, V.A., inzh.; Prinimali uchastiye: ZOTIKOVA, V.I., kand. ekonom. nauk; YELISEYEVA, T.V., inzh.; KUBLITSKAYA, V.Kh., inah.; KUDRYAVTSEVA, T.N., inzh.; MEZENEV, N.I., inzh.; TIKHONCHUK, M.K., inzh.; FEDOSOVA, V.N., tekhnik; DOBSHITS, M.L., red. izd-va; TIKHOMIROVA, S.G., tekhn. red.; LAUT, V.G., tekhn. red.

[Scope of the use of railroads and motorvehicles for short-distance freight haulage] Sfery primeneniia zheleznodorozhnogo i avtomobil'nogo transporta pri perevozke gruzov na korotkie rasstoianiia. Moskva, Izd-vo Akad. nauk SSSR, 1961. 197 p. (MIRA 15:2)

1. Akademiya nauk SSSR. Institut kompleksnykh transportnykh problem.

(Transportation, Automotive) (Railroads--Freight)

FOMIN, V.M.; ZIMIN, A.F., redaktor; YEGURNOV, G.P., redaktor; KOROVENKOVA, Z.K., tekhnicheskiy redaktor.

[Mastering the ShBM-1 Combine at the Cheliuskintsev Mine in the Donets Basin] Opyt osvoeniia kombaina ShBM-1 na shakhte im. Cheliuskintsev v Donbasse. Moskva, Ugletekhizdat, 1954. 34 p. (MLRA 8:5)
(Mining machinery)

FOMIN, V.M.; MARINOV, N.A.

Combined geological and hydrogeological surveying. Razved.i okh.nedr 25 no.11:20-23 N '59. (MIRA 13:5)

1. Ministerstvo geologii i okhrany nedr SSSR (for Fomin).
2. Vsesoyuznyy nauchno-issledovatel'skiy institut gidrogeologii i inshenernoy geologii (for Marinov).
(Prospecting)

KUROV,S.A.; TITKOV,A.I.; VASIL'YEV,A.M.; GLADYSHEV,G.I.; SHAPSHAL,B.G.
BLYAKHMAN,D.S.; BOGACHEVA,M.M.; FOMIN,V.M.

Critical notes on a reference book ("Tractors and Automobiles."
IU.A.Domatovskii, I.I.Trepenenkov. Reviewed by S.A.Kurov). Avt.
trakt. prom. no.5:32 My '55. (MLRA 8:8)
(Tractors) (Automobiles) (Dolmatovskii, IU.A.) (Trepenenkov,I.I.)

FOMIN, V.M., inzhener.

Efficient hauling of grain from the virgin lands . Zhel. dor. transp. 39 no.3:25-28 Mr '57. (MLRA 10:4)
(Grain--Transportation)

ZUMEN, V.N., inzh.-ekon.kand.

Rationalization of grain transportation in connection with the development of virgin and waste lands. Trudy MIIT no.115:233-277 '59. (MIRA 13:1)

(Grain--Transportation)

FOMIN, V.M., kand.ekon.nauk

Role of elevator storage equipment for the efficient transportation of grain cargoes. Rech.transp. 19 no.1:5-7 Ja '60. (MIRA 13:5)

(Grain--Transportation)
(Grain elevators)

FOMIN, V.M., kand. ekon. nauk

Reasons for rebuilding the Saint Lawrence Seaway. Rech. transp. 18 no.4:52-53 Ap '59. (MIRA 13:1)
(St. Lawrence Seaway)

AUTHOR: Tolstaya, M.A., Candidate of Chemical Sciences, Kayris, E.I., Engineer and Fomin, V.M., Engineer.

TITLE: The thermal stability and corrosive activity of nitride-nitrate salt mixtures at temperatures above 500 °C. (Termicheskaya stoykost' i korrozionnaya aktivnost' nitrit-nitratnogo solevogo sostava pri temperaturakh vyshe 500 °C.)

96-7-15/25

PERIODICAL: "Teploenergetika" (Thermal Power) 1957, Vol.4, No.7, pp. 60 - 64 (U.S.S.R.)

ABSTRACT: The salt mixture known as HTS consisting of 40% $NaNO_2$ 53 KNO_3, 7% $NaNO_3$ is commonly used as a heat transfer medium at temperatures above 500 °C and also in hardening baths. Published data is available on the thermal stability and corrosivity of this mixture but it is necessary to study the kinetics of the process of thermal decomposition at temperatures above 500 °C in order to determine its practical importance. The object of the present work is to investigate the kinetics of the process of thermal decomposition of a nitrite-nitrate mixture and its corrosivity within the temperature range 500 - 550 °C, when in contact with pipes of steels used in engineering construction.

Card 1/3

AUTHORS: Fomin, V.M., Kulev, N.A., and Marinov, N.A. 307/132-59-1-8/18

TITLE: Organize the Conservation of Underground Waters (Organizovat'okhranu podzemnykh vod)

PERIODICAL: Razvedka i okhrana nedr, 1959, Nr 1, pp 31-36 (USSR)

ABSTRACT: The intensive exploitation of underground waters in the USSR for industrial and agricultural purposes causes the lowering of the piezometric level, and the deterioration of the quality of these waters. The authors, after citing many cases of the misuse of these natural resources, find that special measures must be urgently taken to prevent superfluous expenditure of the underground waters. Such laws already exist in many states of the US.

ASSOCIATION: Ministerstvo geologii i okhrany nedr, SSSR (The Ministry of Geology and Conservation of Mineral Resources of the USSR); VSEGINGEO

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3(2,5,8) SOV/132-59-5-8/17

AUTHORS: Fomin, V.M. and Marinov, N.A.

TITLE: The Basic Tasks of Hydro-Geological Operations from 1959 to 1965

PERIODICAL: Razvedka i okhrana nedr, 1959, Nr 5, pp 37-44 (USSR)

ABSTRACT: The authors review the achievements of different institutions and organizations of the Ministry of Geology and Conservation of Mineral Resources during the last years and enumerate the tasks and problems which must be solved in the 1959-1965 period. The authors consider that the reserves of ground-water must be treated as another important mineral product and care must be taken of its utilization. They enumerate various Soviet regions where important underground-water reservoirs were discovered, prospected and, at present, are used for the benefit of the population, for the development of agriculture and for cattle-breeding purposes. In the 1954-1958 period, 12,157 wells were drilled, of which 9,817 were transferred for exploitation to different agricultural organizations. The most important task awaiting different institutions of the said

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The Basic Tasks of Hydro-Geological Operations from 1959 to 1965

Ministry will be the study of hydro-geological conditions of regions important for the national economy and the compilation of hydro-geological maps of different republics of the Union. Almost 3 million sq km must be thus mapped before the end of the Seven Year Plan. In the same period, not less than 20,000 new exploring and prospecting wells must be drilled in the unexplored or partly explored regions. The existing net of mineral water health resorts must be considerably enlarged and newly discovered mineral water sources must be exploited. The work of 45 existing hydro-geological stations is far from satisfactory. The geophysical methods of survey are insufficiently introduced into the hydro-geological exploration. In the future, all hydro-geological expeditions must include specialists or a group of specialists conversant with this method of survey. The important task of conservation of water resources must also belong to the duties of these hydro-geological stations. The scientific-research works in the field of hydro-geology and Geological engineering are conducted mainly by the VSEGINGEO and partly by the VSEGEI of the

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The Basic Tasks of Hydro-Geological Operations from 1959 to 1965

Ministry. The most important task awaiting these institutions is a theoretical explanation of the regularity in the distribution and formation of the underground mineralized waters and brines of the Soviet Union. On the solution of this problem depends the determination of basic regularity of the distribution of rare elements in deeply occuring water reservoirs and the compilation of a map forecasting a possible concentration of these elements. The scientific-research institutes of the Ministry must also solve the problem of irrigation of desert parts of the Soviet Union, particularly the Golodnaya Steppe, the Eastern Transcaucasia, the Caspian Coastal region, etc.

ASSOCIATION: Ministerstvo geologii i okhrany nedr SSSR (The Ministry of Geology and of Conservation of Mineral Resources USSR) (Fomin)
The VSEGINGEO (Marinov)

AUTHOR: Fomin, V.M. SOV/132-59-8-18/18

TITLE: A Hydrogeological Conference on Mineral and Thermal Waters in USSR

PERIODICAL: Razvedka i okhrana nedr, 1959, Nr 8, pp 62-63 (USSR)

ABSTRACT: A conference called by the Sektsiya gidrogeologii i inzhenernoy geologii Ekspertno-geologicheskogo sovieta (the Section of Hydrogeology and Engineering Geology of the Expert-Geological Council) at the Ministry of Geology and Conservation of Mineral Resources) took place from 24 to 26 June, 1959. The aim of the conference was to ascertain the degree of accomplished study and further development of scientific research and exploratory works on mineral and thermal waters of the USSR. It was attended by hydrogeologists of all territorial geological directorates and representatives of VSEGINGEO and VSEGEI Institutes, by the collaborators of: Laboratoriya gidrogeologicheskikh problem AN SSSR (Laboratory of Hydrogeological Problems of the

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A Hydrogeological Conference on Mineral and Thermal Waters in USSR

AS USSR), AS Ukrainskaya SSR, AS Belorusskaya SSR, the Dagestanskiy filial (Dagestan Branch of the AS USSR, MGRI, Institut Kurortologii Ministerstva zdravookhraneniya RSFSR (Institute for the Protection of Health of the RSFSR), Pyatigorskiy bal'neologicheskiy institut (Pyatigorsk Balneological Institute), Institut Teploelektroproyekta (Teploelektroproyekt Institute), etc. Hydro-thermal reserves of different regions of the USSR were assessed, the planning or development of new health resorts was reported. In connection with the development of the iodine and bromine industries, the Ministry assessed the reserves of these waters in the Cheleken, Zykh and Krasnokamsk regions and gave an approximate assessment of the iodine-bromine waters of the Krasnodarskiy Kray, and Tatarskaya and Bashkirskaya republics. At present, a total of 170 mineral and thermal sources are in use: there are 134 balneological and drinking health resorts, 45 bottling factories and

A Hydrogeological Conference on Mineral and Thermal Waters in USSR

6 chemical plants (iodo-bromine and soda plants). The conference mentioned the insufficient exploitation of mineral and thermal waters, explained by an under-estimation of their importance in the economic life of the nation. Mineral brines are being insufficiently used in industry. Although many institutions pay much attention to this problem, the Institutes of the Ministry of Geology and Conservation of Mineral Resources ignored this problem for a long time, and only in 1958 did VSEGINGEO begin research work on mineral and thermal waters. Other Institutes, except VSEGEI, of the Ministry do not engage in any studies on the subject. Many reports on the utilization and study of mineral waters were read by: F.A. Makarenko, B.F. Mavritskiy, V.A. Pokrovskiy and S.A. Dzhamalov from LGGP AS USSR, B.M. Vymorkov (Teploelektroproyekt Institute), I.M. Buachidze (Gruzinskaya SSR), N.M. Churshina (Tadzhikskaya SSR), B.A. Beder (Uzbek-

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skaya SSR) A.I. Oganov (Azerbaydzhanskaya SSR) and V.V. Ivanov (Institute of Study of Health Resorts). N.A. Plotnikov (MGRI), I.K. Zaytsev (VSEGEI), P.I. Trofimuk (Glavgeologiya RSFSR) reported on the study and practical utilization of brines. Further extended exploration and prospecting for mineral and thermal waters was recommended by the Conference.

ASSOCIATION: Ministerstvo geologii i okhrany nedr SSSR (Ministry of Geology and Conservation of Mineral Resources of the USSR)

FOMIN, V.M.; KUDELIN, B.I.

Mapping underground water resources in the U.S.S.R. Razved. i okh. nedr 26 no.9:42-45 S '60. (MIRA 15:7)

1. Ministerstvo geologii i okhrany nedr SSSR (for Fomin). 2. Moskovskiy gosudarstvennyy universitet (for Kudelin).
(Water, Ungergground—Maps)

GOLOV, A.Ye.; KOLOMENSKIY, N.V.; FOMIN, V.M.

Results of the conference of the member nations of the Economic Aid Council on mapping for engineering geology purposes. Sov.geol. 4 no.5:151-153 My '61. (MIRA 14:6)

1. Ministerstvo geologii i okhrany nedr SSSR.
(Engineering geology--Maps)

KATS, D.M.; FOMIN, V.M.

Use of vertical drainage in irrigated territories as exemplified by its use in Central Asia. Sov.geol. 4 no.6:8-16 Je '61.
(MIRA 14:6)

1. Ministerstvo geologii i okhrany nedr SSSR i Vsesoyuznyy nauchno-issledovatel'skiy institut gidrogeologii i inzhenernoy geologii.
(Soviet Central Asia—Drainage)

FOMIN, V.M.

Effectiveness of wetting the coal block. Ugol'Ukr. 5 no.3:34-35 M5 '61.

1. Nachal'nik shakhtoupravleniya No.8/9 "Komsomol'skoye."
(Mining engineering)

ZAYTSEV, G.N.; POGOREL'SKIY, N.S.; SMIRNOV, A.A.; FOMIN, V.M.; SHAGOYANTS, S.A.

New data on carbonated underground waters in the region of Caucasian Mineral Waters. Sov. geol. 4 no.1:89-97 Ja '61. (MIRA 14:1)

1. Ministerstvo geologii i okhrany nedr SSSR, Vsesoyuznyy nauchno-issledovatel'skiy institut gidrogeologii i inzhenernoy geologii, Glavgeologiya RSFSR i Severo-Kavkazskoye geologicheskoye upravleniye. (Caucasus--Mineral waters)

MARINOV, N.A.; SOKOLOV, D.S.; FOMIN, V.M.

Current problems in hydrogeology. Sov.geol. 4 no.10:58-67 O '61. (MIRA 14:11)

1. Ministerstvo geologii i okhrany nedr SSSR i Vsesoyuznyy nauchno-issledovatel'skiy institut gidrogeologii i inzhenernoy geologii.

(Water, Underground)

KOLOMENSKIY, N.V.; FOMIN, V.M.

Basic principles of mapping methods from the point of view of engineering geology. Razved. i okh. nedr 27 no.2:56-59 F '61. (MIRA 14:5)

1. Moskovskiy geologorazvedochnyy institut (for Kolomenskiy).
2. Ministerstvo geologii i okhrany nedr SSSR.

(Engineering geology--Maps)

S/169/63/000/002/087/127
D263/D307

AUTHORS: Tal'-Virskiy, B. B. and Fomin, V. M.

TITLE: On the nature of magnetic and gravitational anomalies of the oil-bearing Bukharo-Khivinskaya district and of Kyzyl Kum

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 2, 1963, 15, abstract 2D88 (Uzb. geol. zh., 1962, no. 3, 22-26 (Summary in Uzb.))

TEXT: The anomalous geomagnetic field of the Bukharo-Khivinskaya district is mainly connected with petrographic nonuniformity of the Paleozoic basement. This may also explain the second order gravitational anomalies observed in the north-western part of the Bukharo-Khivinskaya province. Third order anomalies, both in the north-western part of the Bukharo-Khivinskaya province and in conditions of development of mosaic fields of its south-eastern part are caused by local structures such as relief of the Paleoizoic basement and of the overlying Mesozoic and Cainozoic deposits. The characteristic

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On the nature of ...

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structure of the gravitational field of the southern Kyzyl-Kum elevation (Kul'dzhuktau, Auminzatau) is explained by the relief of the basement and deep-seated regional background. [Abstracter's note: Complete translation.]

Card 2/2

BOGOMOLOV, G.V.; VALEDINSKIY, V.I.; KOCHNEV, S.S.; MANIS, M.N.; PANTELEYEVA, Ye.N.; POPOV, I.V.; SYROVATKIN, V.G.; FOMICHEV, M.M.; BOGORODITSKIY, K.F.; DUKHANINA, V.I.; KRASINTSEVA, V.V.; MAKARENKO, F.A.; POKROVSKIY, V.A.; SILIN-BEKCHURIN, A.I.; FOMIN, V.M.; SHAGOYANTS, S.A.

Il'ia Il'ich Kobosev; obituary. Trudy Lab.gidrogeol.probl. 42:101-102 '62. (MIRA 15:8)
(Kobosev, Il'ia Il'ich, 1908-1961)

KATS, D.N.; MARINOV, N.A.; FOMIN, V.M.

Increasing the tempo of the desalting of irrigated land.
Razved. i okh. nedr 29 no.10:48-52 O '63.
(MIRA 17:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut gidrogeologii i inzhenernoy geologii (for Kats, Marinov). 2. Gosudarstvennyy geologicheskiy komitet SSSR (for Fomin).

MARINOV, N.A.; FOMIN, V.M.

Current problems in hydrogeology and engineering geology; results of a scientific and technical conference in the city of Erivan. Razved. i okh. nedr 29 no.11:43-46 N '63. (MIRA 17:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut gidrogeologii i inzhenernoy geologii (for Marinov). 2. Gosudarstvennyy geologicheskiy komitet SSSR (for Fomin).

FOMIN, V.M.

Formation of the underground waters of the Kyzyl Kum uplift.
Razved. i okh. nedr. 30 no.3:49-54 Mr '64 (MIRA 18:1)

1. Gosudarstvennyy geologicheskiy komitet SSSR.

FOMIN, [illegible]; MAVRITSKIY, B.F.; MAKARENKO, F.A.

Mapping and prospecting areas with thermal waters and steam hydrothermal springs. Razved. i okh. nedr 30 no.7:3[illegible] Jl '64. (MIRA 17:12)

1. Gosudarstvennyy geologicheskiy komitet SSSR (for Fomin). 2. Vsesoyuznyy nauchno-issledovatel'skiy institut gidrogeologii i inzhenernoy geologii (for Mavritskiy). 3. Geologicheskiy institut AN SSSR (for Makarenko).

ZOVIL', V.N.

Automatic mixture making and cupola-furnace charging at the "Rostsel'mash" Plant. Biul.tekh.-ekon.inform.Gos.nauch.-issl. inst.nauch.i tekh.inform. 18 no.4:12-14 Ap '60. (MIRA 13:6)

FOMIN, V.N.

Parametric resonance of elastic systems with an infinite number of degrees of freedom. Part 1. Vest. LGU 20 no.13:73-87 '65. (MIRA 18:7)

L 07807-67 EWT(m)/EWP(t)/ETI/EWP(k) IJP(c) JD
ACC NR: AR6017500 SOURCE CODE: UR/0137/66/000/001/I110/I110

AUTHOR: Fomin, V. M.; Genis, L. M.

TITLE: Investigating the operation of the high-temperature SKB-5303A laboratory vacuum electric resistance furnace

SOURCE: Ref. zh. Metallurgiya, Abs. 11764

REF SOURCE: Elektrotermiya. Nauchno-tekhn. sb., vyp. 45, 1965, 3-5

TOPIC TAGS: vacuum heat treat furnace, laboratory furnace

ABSTRACT: The authors describe the SKB-5303A laboratory electric furnace designed for heat treatment of various materials and for other operations at temperatures up to 2500°C (and for brief periods up to 3000°C) and a residual pressure of $5 \cdot 10^{-5}$ mm Hg. The furnace is a horizontal water-cooled cylindrical steel frame consisting of two parts closed at the ends by covers. A forechamber with a loading mechanism is connected to one of the covers and separated from the furnace by a vacuum lock. The other cover contains an observation port. The first model of the furnace was tested for air tightness and for reaching the ultimate residual pressure in the working section. It is concluded from the resultant data that the electric furnace may operate for protracted periods at a temperature of 2500°C with a ±100° nonuniformity in heating with respect to the 100-mm length of the working zone. The furnace is loaded and unloaded without destroying the vacuum. Alterations in the design of the furnace are recommended for improving its technical and economic indices. V. Ferenets. [Translation of abstract]

SUB CODE: 13

UDC: 669.01:662.041

Card 1/1 mc

L 62783-65 EWT(m)/T/EWP(t)/EWP(b) ID
ACCESSION NR: AR5017408 UR/0137/65/000/006/B015/B015

SOURCE: Ref. zh. Metallurgiya, Abs. 6B93

AUTHOR: Fomin, V. M.; Kalitin, V. I.

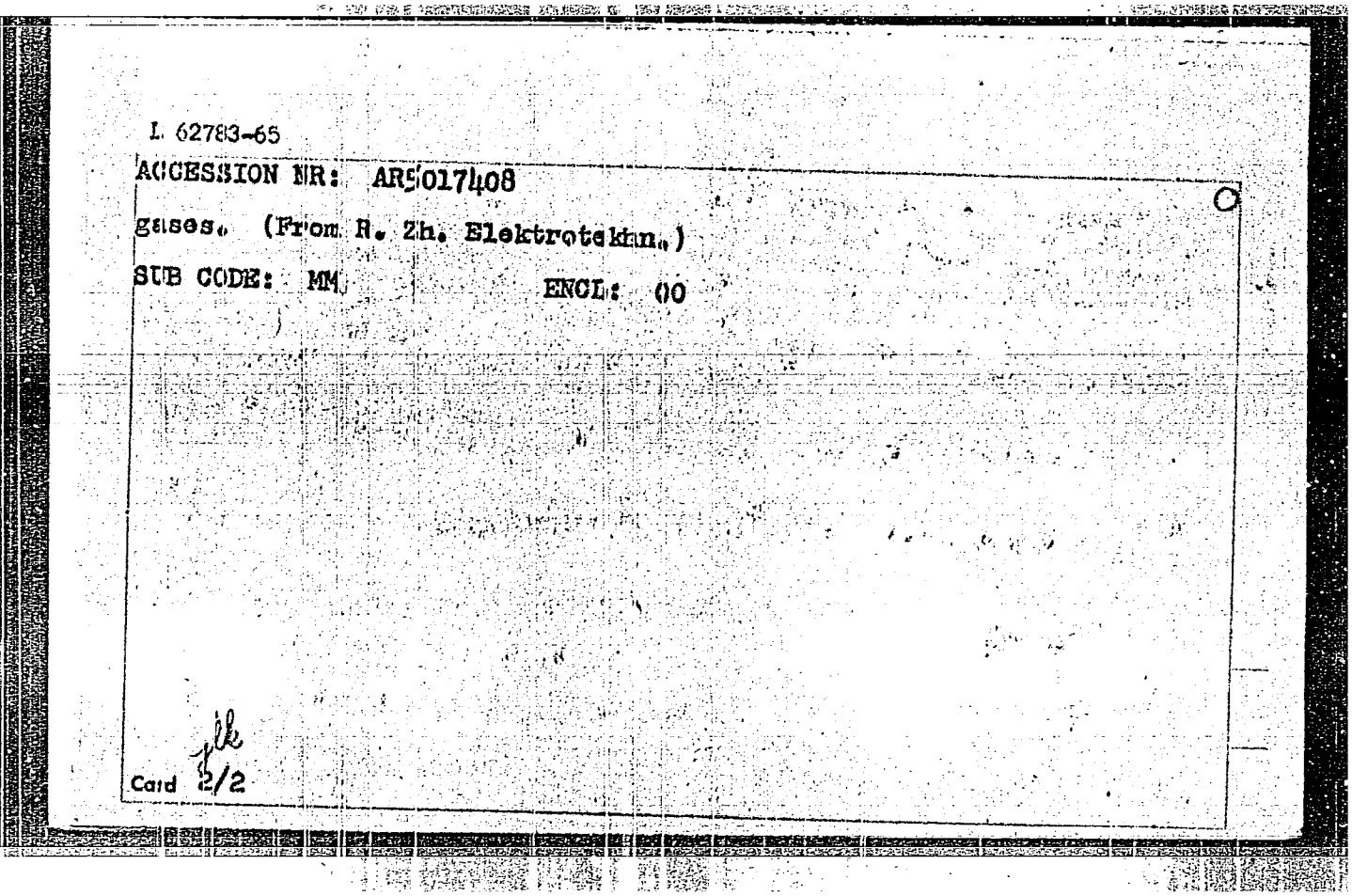
TITLE: Operational test of type SNV-15.30/11.5 (experimental M-03) vacuum chamber electric furnace for heating large dimension pieces in a vacuum or in an inert gas medium

CITED SOURCE: Elektrotermiya. Nauchno-tekhn. sb., vyp. 42, 1964, 12-13

TOPIC TAGS: vacuum chamber, vacuum arc furnace, vacuum furnace development, electric furnace, vacuum heat treatment furnace, inert gas/ SNV-15.30/11.5 furnace

TRANSLATION: The article considers questions of the construction, electrical feed, charge, degree of vacuum, and temperature of a type SNV-15.30/11.5 (experimental M-03) electric furnace, which can find applications in various industrial metallurgical processes involving heating of large ingots or pieces in a vacuum or under protective

Card 1/2



L 62783-65

ACCESSION NR: AR5017408

gases. (From R. Zh. Elektrotekhn.)

SUB CODE: MM ENCL: 00

Card 2/2

L 1046-66 EWT(m)/EWP(w) EM

ACCESSION NR: AP5023357 UR/0020/65/164/001/0058/0061

AUTHOR: Fomin, V. N.

TITLE: Parametric resonance of elastic systems with distributed parameters

SOURCE: AN SSSR. Doklady, v. 164, no. 1, 1965, 58-61

TOPIC TAGS: stability

ABSTRACT: The author considers

$$i\frac{d}{d\tau}\mathcal{F}x = \frac{1}{\theta}[I + \varepsilon\mathcal{H}(\tau)]x, \qquad (1)$$

in separable Hilbert space H where a) $\mathcal{F}$ is a self-adjoint completely continuous operator with unbounded inverse and the operator function $\mathcal{H}(\tau)$ has the form $\mathcal{H}(\tau) = \sum_{k=-m} \mathcal{H}(k)e^{ik\tau}$, symmetric for each τ, and the operators $\mathcal{F}^{-1}\mathcal{H}(k)$ are bounded for $k = 0, \pm 1, \pm 2, \ldots, \pm m$. The author finds the characteristic exponents of (1) subject to

$$\|(\alpha - \alpha_0)I - i\varepsilon S_1\| < \delta. \qquad (2)$$

He finds the greatest real part of the characteristic exponents of (1). Finally, he obtains the region of dynamic instability of the first approximation for sufficiently small ε. Orig. art. has: 12 formulas.

Card 1/2

L 1046-66

ACCESSION NR: AP5023357

ASSOCIATION: Leningradskiy gosudarstvennyy universitet im. A. A. Zhdanova (Leningrad State University)

SUBMITTED: 03Feb65 ENCL: 00 SUB CODE: MA

NO REF SOV: 005 OTHER: 000

Card 2/2 KC

L 24457-65 EWT(1)/EEC-4/EWA(h) Peb

ACCESSION NR: AP5005667 S/0223/64/000/010/0004/0008

AUTHOR: Panchenko, F. Ye. (Head of the signalization and communications service of the East Siberian Railroad); Rodygin, N. A. (Engineer of the railroad laboratory); Fomin, V. N. (Engineer of the railroad laboratory); Shtul'man, M. A. (Chief engineer)

TITLE: Use of waveguide conduits to assist radio communication on AC-electrified railroads

SOURCE: Avtomatika, telemekhanika i svyaz', no. 10, 1964, 4-8

TOPIC TAGS: waveguide, radio communication system, electric interference

Abstract: The introduction of AC electrification has presented very serious problems for existing automation, telemechanical and communication facilities. This is illustrated by the case of radio station ZhR-3, serving the East-Siberian Railway; on electrified portions of this line, the station encounters very high electrical interference. Theoretically the difficulty could be overcome by shifting to VHF, but in the specific range (150-160 Mc) Soviet radio technology has not been able to assure reliable and simple operation of stations. ZhR-3 has therefore taken up the use of waveguides on difficult segments of the route.

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L 24457-65

ACCESSION NR: AP5005667

This decision follows extensive research made during 1960-1962 on the East Siberian RR, by various research groups and the line's laboratory; the results of this research were reported in an article by A. A. TANTSURA, in the No 11, 1963 issue of this periodical.

Waveguide conduits suspended from overhead supports were proposed and introduced into service as early as 1957, on the Irkutsk-Slyudyanka RR (N. A. RODYGIN; this periodical, No 1, 1959), where they have demonstrated their superiority over multiwire conductors ever since; in 1963, the entire Irkutsk-Zima stretch of 240 km had to be similarly equipped.

The technical advantages and problems associated with waveguide conduits are covered in some detail by the present article. Orig. art. has 5 figures.

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00 SUB CODE: EC

NO REF SOV: 000 OTHER: 000 JPRS

Card 2/2

NILENDER, R.A. prof.; FOMIN, V.N., inzh.; UL'MISHEK, L.G., inzh.

The electric lamp industry in the U.S.S.R. during the past 40 years.
Svetotekhnika 3 no.11:10-14 N '57. (MIRA 10:12)

1. Moskovskiy elektrolampovyy zavod.
(Electric lamps)

ACCESSION NR: AP4040719 S/0043/64/000/007/0037/0045

AUTHOR: Fomin, V. N.

TITLE: The stability of linear Hamiltonian equations with period coefficients in Hilbert space

SOURCE: Leningrad. Universitet. Vestnik. Seriya matematiki, mekhaniki i astronomii, no. 7, 1964, 37-45

TOPIC TAGS: Hamiltonian, linear Hamiltonian, Hamiltonian stability, periodic coefficient, Hilbert space, multiplicator, hermitian matrix, monodromy operator

ABSTRACT: Consider the system of differential equations

$$J\frac{dx}{dt}=H(t)x, \qquad (A)$$

where x is a 2m-dimensional vector-function, H(t) is a periodic, hermitian matrix-function, and $J=\begin{pmatrix} 0 & I_m \\ -I_m & 0 \end{pmatrix}$ where I_m is the m-th order unit matrix. It has been established that the multiplicators of the Hamiltonian equation (A) can be decomposed in a natural way into first and second order multiplicators. Moreover, the equation is highly stable if all of its multiplicators are located on the unit circle and if among them there are no multiples of various orders. The converse

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ACCESSION NR: AP4040719

of this assertion has also been proven. It turns out that an analogous statement can be made also for a linear, Hamiltonian equation in a Hilbert space if the coefficients of the equation are bounded operators. The main theorem proved in this paper is: In order that the Hamiltonian equation be highly stable it is necessary and sufficient that the spectrum of the monodromy operator be located on the unit circle and not have points of mixed orders. Two other theorems are also proven. Orig. art. has: 33 numbered formulas.

ASSOCIATION: none

SUBMITTED: 01Nov62 ENCL: 00

SUB CODE: MA NO REF SOV: 006 OTHER: 004

Card 2/2

DERGUZOV, V.I.; FOMIN, V.N. (Leningrad):

"Mathematical analysis of the dynamical stability of elastic systems with infinite degrees of freedom."

report presented at the 2nd All-Union Congress on Theoretical and Applied Mechanics, Moscow, 29 Jan - 5 Feb 64.

83823

S/190/60/002/005/013/015
B004/B067

15.8108 also 2209

AUTHORS: Kozlov, P. V., Makaruk, L., Fomin, V. N., Ol'khovskiy, V. I.

TITLE: Studies in the Field of Polycarbonates. I. Effect of the Molecular Weight on the Transition Temperatures of Polycarbonates

PERIODICAL: Vysokomolekulyarnyye soyedineniya, 1960, Vol. 2, No. 5, pp. 770-777

TEXT: The authors wanted to study the influence exerted by the molecular weight on the thermomechanical properties and the transition temperatures of polycarbonates. The polymers obtained by V. N. Kotrelev at the Nauchno-issledovatel'skiy institut plastmass, Moskva (Scientific Research Institute of Plastics, Moscow) by phosgenating 2,2-bis-(4'-oxyphenyl)propane in homogeneous and heterogeneous media were used. They were dissolved in methyl chloride and fractionally precipitated by means of methanol. Fig. 1 shows the intrinsic viscosity as a function of the concentration for polymers with molecular weights of 20,000 and 235,000. As is shown

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Studies in the Field of Polycarbonates. I. Effect of the Molecular Weight on the Transition Temperatures of Polycarbonates

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by Fig. 2, polymers synthesized in a heterogeneous medium have an anomalous distribution of molecular weights. The thermomechanical properties and the transition temperatures were studied for fractions with molecular weights of from 5,000 to 220,000 (Figs. 3-5, Table). The low-molecular fractions showed no softening point but passed directly from the vitreous into the viscous state. After crystallization, their transition temperature was 70°C higher. In polymers with higher molecular weight and a polymerization degree of 40, the chains became flexible on heating. These products became highly elastic. A further temperature increase, however, led to hardening as a result of crystallization (Fig. 6). In low-molecular polymers it occurred at lower temperatures than in high-molecular ones. The polymers having the highest molecular weight showed the typical behavior of amorphous polymers. According to their molecular weight, polycarbonates have the properties of both crystallizing and amorphous polymers. As to the flexibility of the chains, they hold an intermediate position between polyisobutylene and polyvinyl chloride, although polycarbonate products are characterized by high strength and hardness. This contradiction is explained by a specific steric structure of the large polycarbonate

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Studies in the Field of Polycarbonates. I. Effect of the Molecular Weight on the Transition Temperatures of Polycarbonates

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B004/B067

molecules, by strong intermolecular interaction, and by the assumption of secondary structural formations in polycarbonate products. The authors thank V. A. Kargin for a discussion. There are 6 figures, 1 table, and 18 references: 8 Soviet, 2 US, 1 British, and 5 German.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov)

SUBMITTED: February 2, 1960

Card 3/3

FOMIN, V.N., inzh.

Fully automated assembly line in foundry practice. Lit. proizv. no.9:13-17 S '65. (MIRA 18:10)